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September 14, 2003

#8 Request for Reconsideration (N.E.) E. Francis 9/26/03

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Art Unit 3673, Application No. 09/751,264
Examiner: Mr. Frederick L.Lagman

The following submission is in reply to Advisory Action mailed on 9/3/03.

1. The applicant appreciates the Examiner's upgrade on Claim 2.

2. Applicant's assessment of Claims 2 and 3.

Items related to Claims 2 and 3 (and Claim 4 also) were included in the original specifications to a) show completeness of design to address an inherent limitation from cross sectional area reduction of the part of the structure exposed to ocean waves, that the structure may be subject to extreme movement from large live load changes, b) demonstrate knowledge of physics of dynamics of motion and of mathematics tributary to designs that produce custom dynamic response, and c) teach how to apply dynamics (historically the domain of aerospace and automotive engineers) in a deep-water oil production environment.

The fourth paragraph on page 5 of the specifications stated "...While this patent does not teach sensor usage for active ballast adjustment, live load stabilizer stoppers 80 would restrain large movement resulting from large live-load changes..." The Applicant understood that in an era of computers and electronics, it would be obvious to build an active load leveling system whereby the MWB structure is monitored (by strain gauges for example) to determined the weigh from the superstructure for automatic adjustment of floatation. Thus any independent claim versions of Claims 2 or 3 without establishing first the independence of Claim 1 will be of limited value considering the ease with which to circumvent Claims 2 or 3 by simply excluding the stabilizers and designing a platform based exclusively on active load leveling. However, that is not to say the benefits from Claims 2 and 3 are to be understated, in terms of their fail safe aspect and effect on dynamics of motion.

The most significant part of the Applicant's contribution to the knowledge of mankind is item c) above, by way of reducing the cross sectional area, which is Claim 1.

3. Further discussion on Howard.

As Applicant relies on the book Patent It Yourself by Pressman to process this patent application and did not appreciate all the rules and intricacies of the process although that is not a justifiable excuse, comments from Advisory Action are noted. The Applicant therefore retracts the references to drilling and production facilities as it was not the

intent to introduce new materials. Nonetheless, Howard did not designed a structure to handle any substantial superstructure as a heavy top would lead to instability and overturning. Howard's buoyant storage means 16 is not a substructure suitable for general floating platform applications, and it would be abundantly clear that Howard's platform could not right itself should it be turned upside down, inherently unstable without external downward restraining forces when submerged like MWB.

4. Discussion of Johnson et al.

Johnson et al recognized the need for stability that was not evident in Howard. Considering Johnson et al's cylinder as a free body, turning the entire structure upside down would not disturb its upright nature as long as floatation of the top part of the platform remains intact. The structure would rotate back to seek its natural upright position. Although Johnson et al understood this aspect of stability, they failed to appreciate the dynamics of motion in an ocean setting. They were wrong!

Dynamics is well understood. The derivation of the natural frequency equation on page 3 of Applicants specifications can be found in college freshman physics texts, and the materials also are covered in a first course in differential equations. The Applicant's contribution rested solely on insights in dynamics and vibrations and how the variables in the differential equation on page 2 of the specifications can be defined with respect to a floating object. It was fortuitous that the continuing discussion on page 3 included a degenerate case with uniform cross sectional area (like Johnson et al), invoking the commonly known formula

ω = (gravity/delta static)^{½} / 2 π

that was used to calculate the 2 cycles per minute natural frequency in the middle of page 3 of the specifications. Applying the above equation to what Johnson et al disclosed in lines 25-38 of column 4 of their patent would yield a period of 21.7 seconds for their 380-feet draft (and 23.0 seconds for 430 feet), rather than the 30 seconds as claimed. In other words, their design was not totally above the 22 seconds that they sought, and is below the 25-second waves with peak energy that they stated. To deal with what they did not know or fully comprehend, they relied on and devoted a great part of their work to damping for inhibition of vertical movement.

As Johnson et al did not demonstrate a thorough understanding of dynamics of motion in a water setting, it would be difficult to make an induction that Johnson et al together with Howard would necessarily lead to the conclusion made by Applicant. As a matter of sequence of event, effort was devoted to writing and filing the MWB patent application only after the Applicant saw a "show and tell" on the Diana Platform that was installed in the Gulf of Mexico. Diana was placed in service in 2000 and employed a deep draft vessel (in essence a cylinder with uniform cross sectional area like the design by Johnson et al except for a deeper draft and a longer period). The talented engineers of the best oil services firms and the most significant petroleum companies failed to make the connection between Howard and Johnson et al, even thirty years

after their patents were published. Furthermore, if Diana were built with MWB, there would have been millions of dollars of savings from the construction of a smaller structure, a point missed by Johnson et al who focused on size and mass (lines 17 of column 2, lines 16-19 of column 4). Nobody deduced MWB from the two patents.

The problem rests with Johnson et al failing to teach how to design a platform to obtain a desired natural frequency of oscillation as they were wrong in their calculations and knowledge of physics. If Johnson et al failed to understand their degenerate case with uniform cross sectional area, it would be hard to imagine that their patent can give guidance on more complicated structures with irregular shapes. On the other hand the two equations shown by Applicant on page 3 of the specifications detailed the design parameters for determining vertical natural frequency of oscillation of any floating object, to ensure that the desired resonance is outside of the frequency range of the forces from ocean waves.

5. Request to amend claims.

The results deriving from Applicant's analytical insight were not anticipated by Howard as Howard focused only on static solutions, and Johnson et al can not be relied upon due to lack of a complete understanding of dynamics and motion. To differentiate from Howard and improving on Howard in a general floating and dynamic environment, MWB is set apart with a more complete substructure design that provides greater stability. Accordingly, it is requested to amend Claim 1 and to present all four claims as follows,

1. A floating platform comprising:
a superstructure; a minimized wave-zone buoyancy structure; ***a float; and a ballast***;
with said minimized wave-zone buoyancy structure having a low cross sectional area;
with the minimized wave-zone buoyancy structure having sufficient height to range over ocean waves;
with said ***float and said ballast together*** effective in providing buoyancy and stability; and
with the minimized wave-zone buoyancy structure effective in transmitting ***said*** superstructure's weigh to the ***float and ballast***. (rejected)

2. A floating platform according to claim 1, further comprising one or more live load stabilizers, with said live load stabilizer or stabilizers attached to said minimized wave-zone buoyancy structure at a region from slightly above water level to slightly below water level so that the live load stabilizer or stabilizers operate in and out of the water and are effective in displacing water and in providing increased buoyancy lift when submerged. (objected)

3. A floating platform according to claim 1, further comprising:
one or more floating stabilizers; and limited-free-movement means;
with said floating stabilizer or stabilizers effective in providing buoyancy lift;
with the floating stabilizer or stabilizers attached to said floating platform from above said substructure by said limited-free-movement means; and
with the floating stabilizer or stabilizers floating at water level when the limited-free-movement means is slack and not engaged. (objected)

4. A floating platform according to claim 1, further comprising limited-free-movement means, with said floating platform anchored to ocean bottom by said limited-free-movement means. (rejected)

This patent application is prosecuted without aid of counsel and as stated before is predicated on a self-help book. Applicant thanks the Examiner for his encouragement on claims 2 and 3 and would appreciate any advice on available procedural steps for achieving a successful outcome.

Sincerely,

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